Linking service convenience to satisfaction: dimensions and key moderators

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Abstract

Purpose – Demand for service convenience, defined as a consumer's perception of minimized time and effort spent to obtain a service, has increased in conjunction with certain sociocultural and demographic changes. Previous research notes the significance of service convenience, but the importance of different dimensions of service convenience and the role of key moderators affecting the link between convenience and satisfaction (like customer psychographic and sociodemographic characteristics) remain unaddressed. Thus, the purpose of this research is to identify those customer groups for which offering convenience will have the highest leverage to increase satisfaction.

Design/methodology/approach – Two models are developed and tested: a multidimensional model of service convenience with a formative measure of five service convenience dimensions, namely, decision, access, search, transaction and after-sales convenience, and a moderator model hypothesizing different customer psychographic and sociodemographic characteristics (time pressure, shopping enjoyment, age, household size and income) that affect the link between service convenience and satisfaction.

Findings – This study reveals that search convenience, followed by transaction and decision convenience, exerts the greatest influence on the perception of overall service convenience. In addition, those who value service convenience most are high-income, time-pressed consumers in smaller households who experience low shopping enjoyment.

Originality/value – Providers have limited budgets for enhancing their services. Thus, it is important to identify which dimension has the greatest influence on the perception of service convenience and the customer segments for which service convenience is most critical.

Keywords Retailing, Shopping, Partial least squares, Customer characteristics, Service convenience, Formative measurement models

Paper type Research Paper

Introduction

In his recent *Journal of Services Marketing* article "Revisiting 'big ideas in services marketing' 30 years later", Leonard L. Berry states, "The pervasive influence of the Internet on customers' rising convenience expectations cannot be overestimated. What used to be fast is now slow" (2016). Offering service convenience, defined as a consumer's perception of minimized time and effort to obtain a service (Berry *et al.*, 2002), has become crucial to be competitive. Changing sociocultural and sociodemographic characteristics of consumers further fuel the demand for service convenience (Benoit *et al.*, 2016; Seiders *et al.*, 2007).

This demand for service convenience is highly relevant for service providers: it influences the service firms that consumers choose to (re)patronize and their perceptions of the service experience. It contributes to customers' experience along with their sense of satisfaction, and therefore represents a key research priority (Ostrom *et al.*, 2015). Previous research has shown (Andaleeb and Basu, 1994) or assumes (Berry, 2016) that service convenience has a positive impact on the perception of the service experience and drives customer satisfaction. Customer satisfaction then leads to long-term benefits, including customer loyalty and increased profitability (Cooil *et al.*, 2007; Homburg *et al.*, 2005). Although past research has established the positive effects of the dimensions of service convenience and service convenience itself, important issues have gone unaddressed.

First, service convenience was introduced theoretically as a multidimensional construct (Seiders; *et al.*, 2000) encompassing the dimensions of decision, access, transaction, benefit and post-benefit convenience (Berry *et al.*, 2002). Subsequently, service convenience dimensions have been shown to influence such outcome variables as satisfaction, repurchase visits/spending and referral (see Seiders *et al.*, 2005; Seiders *et al.*, 2007), repurchase intentions in an online shopping context (Jiang *et al.*, 2013), share of wallet, share of visits and exit intention (Moeller *et al.*, 2009), and loyalty (Kaura *et al.*, 2015). We too consider service convenience as a multidimensional construct, and contribute to the literature by

testing how these individual convenience dimensions contribute to the overall perception of service convenience. Considering the need for concise questionnaires, we designed a short scale for the overall construct with four items that capture 2/3 of the variance of the multidimensional measurement with over 20 items. Our research reveals which dimensions are most important to the perception of service convenience and should thus be prioritized from a managerial perspective.

Second, the conceptual literature on service convenience assumes that the relationship between service convenience and customer satisfaction is moderated by customer characteristics (Berry *et al.*, 2002). Empirical research has not tested this, however, nor identified which customer psychographic and sociodemographic characteristics might be significant. Our study provides empirical results that document how customer characteristics like time pressure, shopping enjoyment, age, household size and income affect the link between a major consumer trend (service convenience) and a major driver of profitability (satisfaction) (Cooil *et al.*, 2007; Homburg *et al.*, 2005). These results reveal customer groups that service providers should target to maximize their impact.

Both contributions, the dimensions model and the moderator model, are particularly effective because convenience is a context-dependent construct (Benoit *et al.*, 2016; Jiang *et al.*, 2013). In the next section, we introduce the multidimensional concept of service convenience, define its dimensions, introduce existing measurement approaches, and explain our approach to creating the dimensions model (Figure 1). Afterwards, we review the literature on service convenience and deduce the moderator model (Figure 2), starting with the baseline hypothesis that service convenience has a positive effect on satisfaction. We then explore the moderating hypotheses that psychographic variables – like time pressure and shopping enjoyment along with such demographic variables as age, household size and income – all have an impact on the relationship between service convenience and customer satisfaction. In the subsequent section, we describe how both of these models have been tested. Finally, we discuss the theoretical and managerial

Figure 1 Service convenience dimensions (dimensions model)
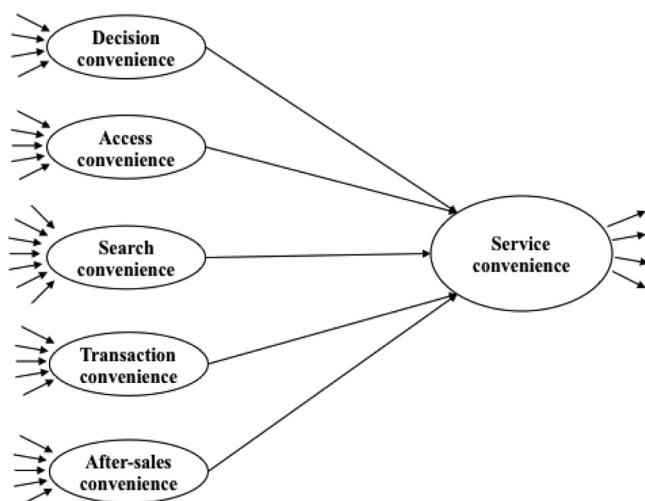
Figure 2 Framework and hypothesized effects (moderator model)
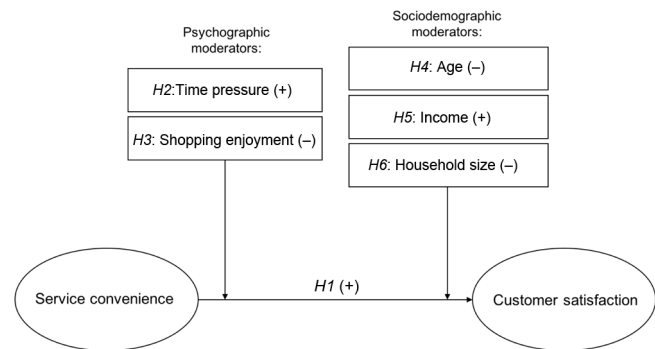
implications of our results, provide limitations and recommend directions for future research.

Framework and hypotheses

Service convenience is a consumer's perception of the degree to which he or she can avoid spending the time and effort associated with shopping (Berry *et al.*, 2002). Previous studies have proposed that service convenience is a multidimensional construct (Berry *et al.*, 2002; Seiders *et al.*, 2005, 2007; Colwell *et al.*, 2008; Jiang *et al.*, 2013; Moeller *et al.*, 2009). In our dimensions model (Figure 1), we adopt this view and investigate the significance of each dimension of service convenience toward an overall one-dimensional service convenience construct. Our second model used this overall one-dimensional service convenience construct and examines the moderating effects of customer demographics on the convenience-satisfaction link (Figure 2). The use of the one-dimensional construct is justified for two reasons: first, we believe that a one-dimensional service convenience construct (with four items rather than around 20) will enable more researchers to include service convenience in their work; and second, we show empirically that our one-dimensional conceptualization accurately represents a multidimensional one, as explained in the methods section.

Conceptualization of service convenience

The following dimensions have been proposed for service convenience: decision, access, search, transaction and after-sales convenience (Berry *et al.*, 2002; Seiders *et al.*, 2005, 2007; Colwell *et al.*, 2008; Jiang *et al.*, 2013; Moeller *et al.*, 2009). In our dimensions model (Figure 1), we adopt this conceptualization.

Decision convenience refers to the consumer's perception of minimal time and effort required to decide to patronize the service provider, which is mainly determined by the availability and quality of information (Seiders *et al.*, 2007). *Access convenience* reflects the consumer's perception of minimal time and effort needed to reach the service provider's location, which usually is a function of its physical location, parking availability and operating hours (Jones *et al.*, 2000; Seiders *et al.*, 2000). *Search convenience* captures the consumer's perception of the time and effort required to identify and select products he or she wishes to buy (Dabholkar *et al.*, 1996). *Transaction convenience* means the minimized time and effort necessary to complete the transaction, including the ease and

speed with which the consumer can find the checkout area and move through it (Dabholkar *et al.*, 1996). Finally, *after-sales convenience* involves the consumer's perception of minimal time and effort in any customer activity after purchase, such as returning merchandise, levying complaints or obtaining a guarantee (Seiders *et al.*, 2000).

Service convenience dimensions have been operationalized as reflective (Seiders *et al.*, 2005, 2007, Jiang *et al.*, 2013) and formative (Moeller *et al.*, 2009). We adopt the formative operationalization, in keeping with Moeller *et al.* (2009), and further operationalize service convenience and thus our dimensions model (Figure 1) as a multiple indicator, multiple cause (MIMIC) model – meaning that the construct is measured redundantly by measuring the first-order dimensions are formative, whereas the second-order factor is reflective (Diamantopoulos *et al.*, 2008). Following the logic of second-order models, with dimensions being part of the construct, we do not formulate any hypotheses for this model.

The link between convenience and satisfaction

Studies show that consumers' perceived minimization of nonmonetary expenditures in terms of time and effort (convenience) positively influences their satisfaction (Andaleeb and Basu, 1994; Kaura *et al.*, 2014). Two conceptualizations of customer satisfaction have evolved: transaction-specific and cumulative (Olsen and Johnson, 2003). The transaction-specific perspective regards customer satisfaction as a post-choice evaluation of a specific purchase occasion (Anderson *et al.*, 1994), whereas cumulative customer satisfaction refers to a global evaluation based on experience with the provider over time (Homburg *et al.*, 2005). We examine cumulative customer satisfaction.

Customers evaluate their relationships to companies by comparing experienced outcomes with their initial expectations. Expectations and outcomes relate to the input–output ratio of these relationships. According to social exchange theory (Thibaut and Kelley, 1959) and equity theory (Adams, 1965), individuals are satisfied with relationships and deem those relationships fair if they feel their input is in due proportion to the output they receive. These theoretical approaches consider the importance of a given (customer's) input rather than focusing solely on a given output (i.e. company performance). To create satisfying customer relationships, service providers therefore have two possibilities: enhancing output or minimizing customer input, including monetary and nonmonetary costs.

A minimization of these nonmonetary costs should positively influence value perceptions of a service (Berry, 2016; Berry *et al.*, 2002; Pan and Zinkhan, 2006). Therefore, as our foundational hypothesis for our moderator model, we posit:

H1. Service convenience positively influences customer satisfaction.

Moderators of the service convenience-customer satisfaction relationship

Customer characteristics describe the time and effort available for shopping (Becker, 1965; Marmorstein and Grewal, 1992). Each consumer values time and effort costs differently: The

higher a consumer's valuation of these scarce resources, the greater the influence of service convenience on customer satisfaction. We investigate two psychographic and three sociodemographic customer characteristics. The psychographic characteristics are time pressure and shopping enjoyment; the sociodemographic are age, income and household size. Past research has shown that each of these characteristics affects consumers' available time and effort (Hornik, 1982) and so should be connected to perceptions of service convenience.

Time pressure
Time pressure is "the perceived constriction of the time available for an individual to perform a given task" (Iyer, 1989, p. 43). Existing studies investigate the effects of time pressure on shopping behavior and the choice of outlets, concluding that time-pressured consumers are more likely to visit service providers that help them save time and effort (Ackerman and Gross, 2003; van Kenhove and de Wulf, 2000; Lloyd *et al.*, 2014). Wait-time research confirms that time-pressured consumers tend to avoid service providers that they anticipate will require a longer wait (Grewal *et al.*, 2003) and express higher satisfaction in response to a short waiting time (Davis and Vollmann, 1990). In our study, time pressure refers to the perceived constraints on time available for shopping. Consumers experiencing time pressure believe that they lack the time necessary to accomplish their shopping and feel hurried or rushed. The impact of service convenience on customer satisfaction therefore should increase with perceived time pressure, such that

H2. Time pressure positively moderates the relationship between service convenience and customer satisfaction.

Shopping enjoyment
Regarding shopping enjoyment, or "the pleasure one obtains in the shopping process" (Beatty and Ferrell, 1998, p. 174), the existing literature usually distinguishes recreational from economic shoppers (Dawson *et al.*, 1990; Williams *et al.*, 1985). Recreational shoppers enjoy shopping as a leisure activity, from which they derive emotional benefits and pleasure (Babin *et al.*, 1994; Reynolds and Beatty, 1999). In contrast, economic shoppers dislike shopping or are neutral toward it, because they do not perceive many benefits of it. They avoid shopping or attempt to minimize the time and effort spent engaging in it (Babin *et al.*, 1994). In addition to the type of shopper, the retail context influences the probability of economic versus recreational shopping, for example, grocery shopping is considered as economic (Kaltcheva and Weitz, 2006). Previous studies indicate that recreational shoppers who enjoy the activity are more likely to spend time and effort shopping than economic consumers with low shopping enjoyment (Beatty and Ferrell, 1998). It seems reasonable to assert that the influence of service convenience on customer satisfaction is greater when the customer's shopping enjoyment is lower. Thus, we hypothesize:

H3. Shopping enjoyment negatively moderates the relationship between service convenience and customer satisfaction.

Age

Older consumers generally have more free time and can allocate more time to shopping (Ailawadi *et al.*, 2001; East *et al.*, 1998). In contrast, most young adult consumers must allocate their available time and effort budgets across both work and household demands (Gross, 1987). Consequently, younger customers experience greater time pressures and are more likely to visit providers that help them save time and effort (McDonald, 1994). Therefore, we expect that the impact of service convenience on customer satisfaction decreases with age and hypothesize:

H4. Age negatively moderates the relationship between service convenience and customer satisfaction.

Income

From an economic perspective, time spent shopping can be expressed in monetary terms as opportunity costs (Becker, 1965), often in terms of the consumer's income (Leclerc and Schmitt, 1995; Okada and Hoch, 2004). The opportunity costs for shopping therefore should increase with income, such that higher-income customers value their time more and are more discriminating in how they allocate it (Lloyd *et al.*, 2014; Marmorstein and Grewal, 1992). We posit that the influence of service convenience on customer satisfaction increases with the consumer's income and hypothesize:

H5. Income positively moderates the relationship between service convenience and customer satisfaction.

Household size

Finally, existing studies reveal that single-person households are more convenience-oriented than multiple-person households (Candel, 2001; Scholderer and Grunert, 2005). Singles can thus be expected to visit providers that help them save time and effort so as to stretch their available time and effort budgets across both work and household demands (Gross, 1987). Larger households have more flexibility allocating their shopping activities to different members of the household; one person in a larger household can address the needs of the other members, especially for items like groceries and packaged goods. The influence of service convenience on customer satisfaction should therefore decrease with household size. We hypothesize:

H6. Household size negatively moderates the relationship between service convenience and customer satisfaction.

Empirical study

Data collection

To collect our data and test both models, we collaborated with a retailer in the consumer and packaged goods sector. This is an appropriate research setting for three reasons. First, grocery and packaged goods consumers are economically oriented and price-sensitive (Govers and Schoormans, 2005), so convenience should be very relevant. Second, the groceries and packaged goods sector constitutes one of the largest and most important shopping contexts. Third, in-store shoppers in the grocery context do not behave differently from those who shop online in terms of time spent or effort expended (Jiang *et al.*, 2013).

We collected data through a nationwide mail survey of customers of a Western European retailer. The retailer provided contact information for 4,500 cardholders of a nationwide loyalty program that features more than 25 varied companies, including our focal grocery and packaged goods retailer. In this country, more than 60 per cent of the households possess such a loyalty card, so we can assume that we captured a high proportion of the provider's transactions with this population. We randomly selected customers who had purchased from any store in the preceding eight weeks, but also ensured that respondents with low, medium and high shopping expenditures and frequency appeared in the sample. In addition, because some respondents might lack experience with after-sales services, we designed the survey to include a "no experience" response for the five after-sales convenience items.

We pre-tested the questionnaire with 20 potential respondents from the same sample population, following Dillmann's (2000) recommendations. This pre-test resulted in minor modifications in the wording of some items. To increase response rates in the main study, we provided a personally signed letter with a pre-addressed, postage-paid return envelope and a €20 coupon offered as an incentive. After six weeks, we sent a follow-up letter and survey to non-respondents, offering them another chance to participate. A total of 1,036 people responded, for an effective response rate of 23 per cent. After screening the questionnaires for completeness, we obtained 972 usable responses.

We found no significant differences between early and late responses, meaning that nonresponse bias did not appear to be an issue (Armstrong and Overton, 1977). We also compared our sample against nationwide demographic variables of grocery shoppers. According to AC Nielsen (2015) our sample is representative of customers of grocery and packaged goods retailers. Furthermore, we conducted a missing data analysis using SPSS; the small amounts of missing data appeared random and thus could be imputed by means of the EM algorithm available in SPSS (Schafer and Graham, 2002).

Measures

We drew the scales for customer satisfaction, time pressure and shopping enjoyment from previous research. The cumulative customer satisfaction variable consisted of three items adapted from Voss *et al.* (1998). To measure the moderating variables of time pressure and shopping enjoyment, we used three items from Putrevu and Ratchford (1997) and Urbany *et al.* (1996), adapted to the packaged goods context. The items all used seven-point Likert scales ranging from "strongly agree" (1) to "strongly disagree" (7). For the sociodemographic moderating variables (age, income and household size), we used self-reported measures with five or six categories each.

For service convenience, our focal variable, we drew on existing scales from Moeller *et al.* (2009) to measure the dimensions of service convenience within the dimensions model (Figure 1). The existing literature conceptualizes service convenience as a multidimensional construct with five first-order factors (Seiders *et al.*, 2007). Our research contributes to the literature by testing how these individual dimensions contribute to the overall perception of service convenience. We

note that each dimension of service convenience includes many different aspects that together constitute the formative construct (Coltman *et al.*, 2008; Jarvis *et al.*, 2003). For example, access convenience includes both time-related accessibility in terms of operating hours, and space-related accessibility in terms of location and parking spaces. Search convenience includes the orientation in the store, its atmosphere, product locations and the ease of product decisions. Even transaction convenience features checkout personnel, payment methods and waiting time at the cashier (see Appendix 1). We operationalize service convenience as a MIMIC model – meaning that the construct is measured redundantly by measuring the first order dimensions as formative, whereas the second-order factor is measured reflectively (Diamantopoulos *et al.*, 2008).

To measure the overall perception of service convenience within the moderator model, we developed a new one-dimensional scale to offer a short version of a service convenience scale. This compact scale should enable more researchers to integrate this important construct into their models. This new four-item measure captures two-third of the multidimensional construct measured by 26 items and is thus a good representation of the overall concept.

Analysis and results

Validity and reliability

To assess the validity and reliability of our measures, we used different evaluative criteria for the constructs with formative indicators (service convenience dimensions) and reflective indicators (overall service convenience, customer satisfaction, time pressure and shopping enjoyment; Appendices 1 and 2).

To evaluate the validity and reliability of the formative second-order service convenience construct, we followed criteria specified by Diamantopoulos and Winklhofer (2001) and MacKenzie *et al.* (2005): content specification; indicator specification; multicollinearity test; discriminant validity and external validity. These five criteria confirmed that our formative measures are valid and reliable. As we show in Appendix 1, for all indicators, the p_{sa} and c_{sv} were well above the cutoff values of 0.50 (p_{sa}) and 0 (c_{sv}) (Anderson and Gerbing, 1991).

Second, indicator specification relates to the relevance of each indicator in creating the formative construct (Chin, 1998), as represented by the significance weights of the formative indicators, which were sufficient for 21 of the 26 formative indicators (Appendix 1). Weights (formative indicators) should not be interpreted as factor loadings (reflective indicators), however, so we did not need to eliminate the five formative indicators with insignificant weights, as we would have done for reflective indicators (Bollen and Lennox, 1991).

Third, in formative measurement models, eliminating indicators is appropriate only if two items capture similar aspects and thus exhibit multicollinearity (Diamantopoulos and Winklhofer, 2001). In our study, the highest variance inflation factor (VIF) was 3.626, and most (24 of 26) indicators revealed VIFs far below 3 (Appendix 1). Given that researchers consider VIFs up to 10 acceptable (Hair *et al.*, 2006), we found no evidence of multicollinearity.

Fourth, MacKenzie *et al.* (2005) suggest testing for discriminant validity of formative constructs. Correlations of less than 0.71 would indicate the service convenience dimensions had good discriminant validity, such that all five dimensions represented distinct areas of service convenience (Bruhn; *et al.*, 2008). The significant path coefficients between the dimensions and the overall service convenience construct confirmed the discriminant validity of our measures.

Lastly, internal consistency examinations are inappropriate for formative constructs, so their external validity should be tested (Jarvis *et al.*, 2003). One approach is to measure the construct in question as a reflective construct. Because we developed a new scale for the perception of service convenience in the moderator model, we assume external validity for service convenience. This measure was satisfactory (Appendix 1). In keeping with previous research (Jarvis *et al.*, 2003), we assessed external validity at the indicator and dimension levels by correlating each indicator of the five first-order dimensions (26 items) with the reflective global service convenience measure. All correlations were significant, affirming external validity (see Appendix 1). The results in Appendix 1 further detail our formative measures of the service convenience dimensions. Weights represent the importance of each indicator for the construct. For example, for search convenience, the two most important indicators were orientation in the store and easy selection of merchandise. We, therefore, can derive implications for both researchers and managers.

We tested the validity and reliability of all reflective constructs (service convenience, customer satisfaction, time pressure and shopping enjoyment) using the criteria proposed by Chin (1998) and Hulland (1999), namely, indicator reliability (factor loadings > 0.70, *t*-values > 1.645), convergent validity (Cronbach's alpha > 0.70, composite reliability > 0.60) and average variance extracted (AVE > 0.50). All criteria exceeded the cut-off values (Appendix 2) and therefore indicated high levels of convergent validity. In addition, we assessed discriminant validity using Fornell and Larcker's (1981) criterion and cross-loadings. None of the inter-correlations of the construct exceeded the square root of the AVE, and no item cross-loaded higher on another construct than on its associated construct (Chin, 1998); therefore, the constructs exhibited satisfactory discriminant validity.

Dimensions model

As recommended by Chin *et al.* (2003), we used partial least squares (PLS-Graph 3.0; Wold, 1966) to estimate the effects of the dimensions in our Model 1 and the moderating effects in Model 2. As Chin (1998) notes, PLS path modeling is very appropriate for models that contain formative constructs. We first tested the impact of the dimensions on the overall service convenience construct. First, all paths were significant ($p < 0.01$), and four out of five were greater than the critical value of 0.10 (Lohmöller, 1989). Search convenience (0.42) has by far the highest impact, transaction (0.22) and decision convenience (0.20) have a medium impact and access (0.10) and after-sales convenience (0.07) have the lowest impact. We further tested model fit according to Cohen's (1988) classification, and found that the overall service convenience construct ($R^2 = 0.66$) has true explanatory power. This proves

the quality of our new reflective scale of overall service convenience.

The weights of an indicator in Appendix 1 represent its importance in forming the dimension (Chin, 1998). From our results we can conclude that well-trained checkout clerks (0.482) are more important to the perception of transaction convenience than the atmosphere in the sales area (0.298). To avoid redundancy we will elaborate on these results in the implication section.

Moderator model

To test the hypotheses in our moderator model, we used the two-step score construction procedure (Chin et al., 2003, Supplement A). The PLS method supports the explicit estimation of latent variable scores, after standardizing the latent variable scores (Tenenhaus et al., 2005). We calculated the interaction terms and included them in the model so that we could test for a relatively large number of moderating effects while correcting for measurement error (Chin et al., 2003). We used a bootstrapping procedure with 500 replications to test the effects and statistical significance of the parameters in the structural model (Chin, 1998; Chin, 2001). For the moderator model recommended by Chin et al. (2003), we used a hierarchical approach to test our hypotheses, such that we first estimated a model with only main effects and then added the moderating effects, as detailed in Table I.

In support of H1, we found a significant direct, positive effect of service convenience on customer satisfaction ($\beta = 0.77$). Service providers can enhance their customers' satisfaction by increasing service convenience. We also found significant moderating effects for all our predictions, with the exception of the age effect. Specifically, the impact of service convenience on customer satisfaction was stronger when time pressure ($\beta = 0.16$) and income ($\beta = 0.34$) increased, in support of H2 and H5, respectively. The link between convenience and satisfaction weakened with greater shopping enjoyment (H3, $\beta = -0.26$) and a larger household size (H6, $\beta = -0.22$). The lack of support for the expected moderating effect of age (H4) implied that the impact of service convenience on customer satisfaction was equally strong for older and younger customers. We elaborate on these results in the discussion section.

Model fit

To evaluate the fit of the moderator model we followed Chin's (1998) recommendations and applied R^2 and the Stone–Geisser test (Q^2). The R^2 value represents the explanatory power of structural models (Fornell and Cha, 1994). According to the categorization by Cohen (1988), the explanatory power of our moderator model is large ($R^2 = 0.64$, Table I). Furthermore, Q^2 ($= 0.09$) is greater than 0, thus supporting of the predictive relevance of the moderator model (Fornell and Cha, 1994). The R^2 for the model that includes both main and interaction effects was 0.64, and that for the main effects model was 0.59. According to an incremental F-test ($F = 19.3$), the ΔR^2 was statistically significant. We calculated f^2 to assess the effect size of the interaction terms in the moderator model; the f^2 values between 0.02 and 0.05 suggested small to moderate effect sizes (Cohen, 1988).

Implications

We have identified two gaps in prior research: First, service convenience dimensions have been considered without detailing the significance of different dimensions and items for the perception of service convenience. Second, research has yet to explore which moderators affect the relationship between service convenience and customer satisfaction. In addressing these gaps, our study extends and enriches the existing literature.

Research implications

Dimensions model

By validating the multidimensional measurement, we reveal the relative importance of service convenience dimensions to the overall perception of service convenience.

Search convenience has the greatest importance. As can be seen by the weights of the indicators (Appendix 1) the orientation within a store and selection of merchandise are particularly significant. Finding prices or locating merchandise on the shelf is relatively less influential. These results emphasize the need to consider such topics as option overload, consumer confusion, assortment complexity and choice deferral (Iyengar and Lepper, 2000; Schweizer et al., 2006; Thompson et al., 2005).

Transaction convenience is the next most important dimension. The weights of the indicators reveal the significance of the service experience during payment and checkout, including the ability to reach the cashier quickly and interact with well-trained checkout clerks. Remarkably, however, the

Table I Hypothesis tests, moderator model

Hypothesis	Relationship	Hypothesized direction	Path coefficient β	Results
H1	SCON → SAT	Positive	0.77**	Supported
H2	SCON × TP → SAT	Positive	0.16*	Supported
H3	SCON × SE → SAT	Negative	−0.26**	Supported
H4	SCON × AGE → SAT	Negative	*0.13*	Not supported
H5	SCON × INC → SAT	Positive	0.34**	Supported
H6	SCON × HHS → SAT	Negative	−0.22*	Supported
Fit Measures			*Main Effect Model*	*Final Model*
R^2			0.59	0.64
Q^2			0.08	0.11

Note: SCON = service convenience; SAT = customer satisfaction; TP = time pressure; SE = shopping enjoyment; AGE = age; INC = income; HHS = household size. Significance based on one-tailed-test; *$p < 0.05$; **$p < 0.01$; coefficients in italics are not significant

availability of different payment options does not influence transaction convenience much.

Decision convenience is almost as important as transaction convenience to the perception of service convenience. Most influential within this dimension is the ease of making a decision about the service provider and determining whether the requested merchandise is available. Customers seem to perceive the most decision convenience when they do not have many alternatives.

Access and after-sales convenience are less important. The minimal importance of *access convenience* is especially noteworthy, given that research has long cited location as the most important determinant of differentiation and success (Ghosh and Craig, 1986). Perhaps increased consumer mobility forces service providers to differentiate themselves by mitigating option overload and the burden of choosing for their shoppers. Similarly, studies have found that aspects other than location affect retail patronage (e.g. Pan and Zinkhan, 2006); for example, Seiders et al. (2000) note the significance of option overload in their finding that many consumers consider large malls inefficient, because they cannot locate their desired stores or product category. Finally, the relatively weak importance of *after-sales convenience* might reflect the product category and confirm the context-specific nature of service convenience (Jiang et al., 2013). Exchanging products and enforcing guarantees might be less relevant for short-lived products like consumer packaged goods.

Moderator model

The results of our study support the foundational assumption that service convenience is a promising means to enhance customer satisfaction. By reducing the perceived time and effort required to complete the shopping process, companies can enhance satisfaction, a key driver of profitability (Cooil et al., 2007; Homburg et al., 2005).

Furthermore, we have investigated the moderating effects of psychographic and sociodemographic customer characteristics. The link between service convenience and customer satisfaction is positively moderated by time pressure and income because opportunity costs are higher for consumers who experience more time pressure and earn higher incomes. These consumers value their time more, and thus are even more satisfied when a provider saves them time and effort (Marmorstein and Grewal, 1992).

This relationship also suffers negative moderating effects, such as those exerted by shopping enjoyment and household size. Consumers with high shopping enjoyment are willing to spend time and effort to shop (Reynolds and Beatty, 1999), and larger households can be more flexible in allocating shopping tasks to different members (Gross, 1987). Thus, smaller households and consumers with low shopping enjoyment exhibit greater appreciation when service providers minimize the time and effort required for shopping.

In keeping with the previous literature, we predicted that older people would have more time for shopping. Thus, they would value savings of time and effort less than younger consumers (Ailawadi et al., 2001; East et al., 1998). Our study did not confirm this moderating effect of age, however, which may indicate that the notion of "an older generation" with different demand patterns from younger consumers is inaccurate. First, chronological age seems less important for consumer behavior than perceived age. And second, aging should be better differentiated in the research, perhaps in terms of biological, psychological and social aging (Mathur and Moschis, 2005). Finally, a growing proportion of older consumers feel "cognitively young". They engage in many leisure activities and may have less time available for shopping (Szmigin and Carrigan, 2001).

Managerial implications

Against this backdrop, our study helps service providers understand how to increase service convenience and thus enhance customer satisfaction to drive profitability (Cooil et al., 2007; Homburg et al., 2005). Our research identifies the extent to which each dimension contributes to the overall perceptions of service convenience and offers guidance for prioritizing resources in enhancing service convenience. In addition, our consideration of the moderating effects of customer characteristics on the relationship between service convenience and customer satisfaction provides new details about which customers are likely to value service convenience most.

Our results highlight the importance of an optimized rather than maximized assortment because search convenience has the greatest impact on overall perceptions of service convenience. Service providers therefore need to emphasize assortment management and address such problems as overwhelming product features (Thompson et al., 2005), consumer confusion in the face of wide assortments (Schweizer et al., 2006), and choice deferral (Iyengar and Lepper, 2000). Yet, rather than releasing customers from the burden of choice, some providers seem to think, instead, that maximizing the assortment is a best practice to satisfy customer needs.

Key suppliers could play an important role in optimizing assortments because products, packaging and presentation all should aim to enhance search convenience. Customers also value an efficient store layout, and they need support from sales personnel who can provide adequate information quickly. Consumption decisions can be complex, as Berry et al. (2002) acknowledge, and fuel increased demand for such services as personal shopping, concierge agencies or internet comparison sites. The emergence of these service providers confirms the growing importance of search convenience. The enhancement of in-store convenience should start with improved search convenience.

Furthermore, service providers must realize the importance of the service encounter at checkout (transaction convenience). They should expend the effort to train checkout clerks and minimize the time needed to reach a cashier. The implications of the decision for a service provider (decision convenience) are also crucial, especially in terms of the ease of making this decision and the availability of the desired merchandise. Service providers should, therefore, provide information through their websites, advertisements, catalogs, hotlines and so forth to enable consumers to make decisions about both the service provider and its assortment before visiting. For example, on the IKEA website, customers can check whether a product is in stock in a specific store, allowing them to avoid the inconvenience of visiting the store without being able to purchase particular items.

Service providers can significantly enhance customer satisfaction by sparing their customers time and effort, especially for those customers whose psychographic and sociodemographic characteristics indicate that they prioritize service convenience. For example, the greater impact of service convenience on customer satisfaction for those under high time pressure, who experience low shopping enjoyment implies that our results are particularly important in industries for which economic shopping is common, such as grocery shopping (Kaltcheva and Weitz, 2006). Selected grocery retailers like Tesco have implemented diverse approaches to address this customer segment by offering different opportunities to combine online and physical grocery shopping: for example, customers save time and effort by being able to save their shopping lists to their online customer accounts for future use. As a result, customers are able to place their order within seconds. Retailers also offer different delivery methods for merchandise: delivery to home or work addresses, or the opportunity for customers to pick up the merchandise either directly at the store or at special 24/7 pick-up stations. Furthermore, the moderating effects of income and household size suggest service providers should adapt their quality and packaging to appeal to smaller households. Yet, differentiating the degree of convenience offered on the basis of customers' age is not effective. To allocate their service-related resources optimally, service providers must consider how service convenience affects the satisfaction of various customer segments. The customer group affected most includes small, high-income households in all age groups that are pressed for time and do not enjoy shopping. For retailers, this segment is very valuable and therefore justifies additional attention and further effort. To increase satisfaction within this particular segment, retailers should concentrate on the three most important convenience dimensions (search, transaction and decision convenience) and develop more tools and special offers. For example, Amazon offers selected products like baby diapers as discounted subscriptions. During ordering, customers choose their favorite delivery interval and get their deliveries accordingly. This offer could be expanded to a whole weekend shopping basket: once ordered, it could be delivered regularly at the most convenient time.

Limitations and further research

To extend our study, additional research efforts should focus on other factors, like involvement or price sensitivity, which may moderate the relationship between service convenience and customer satisfaction. For example, price-sensitive consumers appear more likely to spend time and effort to find the lowest priced products (Marmorstein and Grewal, 1992), and highly involved consumers spend more time and effort in the product selection process (Brown and McEnally, 1992).

Although our focus is the link between service convenience and customer satisfaction, other literature also indicates that service convenience enhances customer loyalty (Pan and Zinkhan, 2006) and affects willingness to pay (Berry *et al.*, 2002). Therefore, further research should investigate the influence of service convenience on these or other outcome variables.

Our research reveals that search convenience has the greatest impact on perceptions of overall convenience, far surpassing access convenience. These results suggest directions of further research. First, we encourage research into what creates an overall satisfying or convenient transaction. Second, conventional wisdom, such as the claim that location is the most or even only important factor in competition, must be challenged. Third, we show that the link between service convenience and satisfaction is influenced by moderators; the influence of various dimensions on overall service convenience might likewise be moderated by certain factors or conditions.

Our study of service convenience focuses on grocery and packaged goods retailing. Because service convenience is highly context specific (Jiang *et al.*, 2013), our results might not generalize to other, possibly more hedonic contexts. Our examination of service convenience is also limited to the physical shopping environment, and the results may differ in an online shopping context. Further research should replicate and extend our research across other industries, data collection settings and into the virtual shopping environment to encourage a more thorough understanding of service convenience.

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Appendix 1

Table AI Item descriptions: formative service convenience construct

Items	p_{sa}	c_{sv}	Weight	*t*-value	VIF	$corr_{ij}$
Decision convenience						
I quickly receive information at XYZ before shopping	0.75	0.5	0.118	3.571**	1.279	0.322**
Deciding to shop at XYZ is quick	0.90	0.8	0.346	7.872**	2.370	0.527**
Deciding to shop at XYZ is easy	0.75	0.5	0.416	9.103**	2.303	0.547**
I can quickly determine before shopping whether XYZ offers what I need	1	1	0.383	12.551**	1.267	0.424**
Access convenience						
It is easy to reach XYZ	1	1	0.183	2.706**	2.276	0.265**
It takes little time to get access to the store of XYZ	0.90	0.80	0.158	2.287**	2.266	0.236**
XYZ offers convenient parking facilities	0.90	0.80	0.119	1.887*	1.853	0.310**
It is easy to get from the parking space to the store	1	1	0.388	5.617**	1.982	0.391**
XYZ offers convenient opening hours	1	1	0.552	12.762**	1.220	0.403**
Search convenience						
XYZ makes orientation in the store easy for me (e.g. helpful signage)	0.85	0.70	0.256	9.447**	2.422	0.597**
It does not take much time to go the shelves with the products I want	1	1	0.196	7.147**	2.758	0.606**
I can quickly locate the merchandise I want at XYZ	1	1	0.008	*0.215*	2.948	0.594**
The atmosphere (e.g. temperature, music and lighting) in the salesrooms is sometimes stressful (r)	1	1	0.224	9.795**	1.122	0.365**
I find it easy to select merchandise at XYZ	0.90	0.80	0.298	10.771**	1.535	0.520**
I can quickly get information at XYZ (e.g. about the location of merchandise I want)	1	1	0.221	6.495**	2.079	0.607**
It is easy to find the prices of the merchandise	1	1	0.190	7.399**	1.443	0.451**
Transaction convenience						
It does not take much time to go to the cashier	1	1	0.306	8.555**	1.401	0.477**
The atmosphere (e.g. temperature, music and lighting) at the cashier area is sometimes stressful (r)	1	1	0.298	9.766**	1.108	0.390**
I am able to complete my purchases quickly at XYZ (e.g. short lines)	1	1	0.164	4.331**	1.482	0.445**
XYZ has well-trained checkout clerks	1	1	0.482	14.276**	1.521	0.500**
XYZ offers convenient possibilities to pay (e.g. cash card and credit card)	0.90	0.80	0.203	5.628**	1.236	0.320**
After-sales convenience						
XYZ offers generous exchange policies (e.g. conversion period and money-back guarantee)	1	1	0.264	4.174**	2.765	0.409**
It takes little time to exchange products at XYZ	0.90	0.80	0.312	5.589**	2.036	0.424**
It is easy to take care of returns at XYZ	0.95	0.90	0.088	1.374*	3.626	0.412**
XYZ replaces defective products without any problems	0.75	0.65	0.001	*0.003*	3.189	0.394**
XYZ has well-trained clerks for product exchanges and returns	0.85	0.70	0.484	7.427**	2.271	0.441**

Note: (r) = reversed item; XYZ = name of the retailer; psa = proportion of substantive agreement; csv = substantive validity coefficient; VIF = variance inflation factor; corrij = correlation between indicator i and global service convenience construct j; *$p < 0.05$; **$p < 0.01$; coefficients in italics are not significant

Appendix 2

Table AII Item descriptions of the reflective constructs

Items	Standard loadings	*t*-value	Cronbach's alpha	Factor reliability	AVE
Service convenience (reflective)					
XYZ allows me to do my shopping quickly	0.8754	88.54**			
Overall XYZ allows me to do my shopping without any stress	0.9209	111.05**			
I perceive all things considering shopping experience at XYZ as comfortable	0.9205	144.40**			
Shopping at XYZ is very convenient	0.9346	198.78**	0.933	0.9525	0.8338
Customer satisfaction (SAT)					
Overall I am very satisfied with XYZ	0.923	166.634**			
XYZ always fulfills my expectations	0.919	122.797**			
My experiences with XYZ are very positive	0.908	108.630**	0.905	0.940	0.840
Time pressure (TP)					
When I purchase groceries, I am always in hurry	0.905	38.839**			
I only ever have limited time for grocery shopping	0.820	17.100**			
When I purchase groceries, I feel most of the time time-pressured	0.915	50.899**	0.859	0.912	0.776
Shopping enjoyment (SE)					
I think grocery shopping is a chore (r)	0.816	38.470**			
I like to finish my shopping as quickly as possible and get out of the store (r)	0.736	29.564**			
I enjoy grocery shopping	0.849	43.218**	0.727	0.844	0.643

Notes: (r) = reversed item; XYZ = name of the retailer; AVE = average variance extracted; **$p < 0.01$

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